# UNITED STATES PATENT AND TRADEMARK OFFICE

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/215,555 | 12/18/1998 | MAKOTO SANO | 102382 | 7246 |

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| EXAMINER |
|---|
| SINGH, RACHNA |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2176 | |

DATE MAILED: 07/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) |
|---|---|---|
| | 09/215,555 | SANO ET AL. |
| | Examiner | Art Unit |
| | Rachna Singh | 2176 |

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on <u>23 April 2003</u> .

2a)☒ This action is **FINAL**.        2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) <u>1-16</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-16</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All  b)☐ Some * c)☐ None of:

        1.☒ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____ .

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .

4) ☒ Interview Summary (PTO-413) Paper No(s). <u>14</u> .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

## DETAILED ACTION

1.      This action is responsive to communications:  amendment filed 4/23/03.

2.      Claims 1, 12, 14, 15, and 16 are independent claims.

### *Priority*

3.      Acknowledgment is made of applicant's claim for foreign priority under 35

U.S.C. 119(a)-(d).  The certified copy has been filed.

### *Claim Rejections - 35 USC § 103*

4.      The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.      Claim 1-6, 8-10, and 16 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Dennis et al., US Patent 5,588,095, 12/24/96.

In reference to Amended Independent Claim 1, Dennis discloses a system and

method of printer banding in which a printed page is broken up into horizontal segments

or bands that reflect the order of objects on the printed page (compare to

*"reconstructing means for reconstructing print data for instructing contents. .*

*.obtained by dividing the page into a plurality of regions"*).  See column 1, lines 55-

57. The data is stored in the system in a format known as PDL (page description

language) (compare to *"converting means for converting the data. . .in a page*

*description language form"*).  The PDL format describes the entire page in a file

called a metafile.  See column 3, lines 42-51.  The PDL data is then transmitted to the

printer engine (compare to *"transmitting means for transmitting the page*

*description language data"*).  See column 4, lines 35-45.  Dennis teaches transmitting

a list of bandable primitives for the entire page.  Objects that cross band boundaries are

divided at the band boundaries.  The objects are taken in the order they are created and

overlapping objects are defined by previous objects.  Dennis's motivation for doing this

is to save time in reconstructing data that has already been constructed.  Please see

columns 5-6 and figure 3.  Dennis further teaches that different shapes and graphical

objects require different reconstruction means.  See columns 6-8.  In particular, Dennis

addresses that shapes such as circles cannot be divided into horizontal bands easily.

Thus they are represented by a series of simple geometric shapes.  (compare to

*"wherein the reconstruction means , processes and distinguishes print data*

*according to a type of the print data, and decides whether the band units to be*

*reconstructed have common data"*).  It would have been obvious to one of ordinary

skill in the art at the time of the invention to select a predetermined method of

reconstruction since it was common at the time for print data to consist of various types

of data such as text and graphic objects as taught by Dennis.  It would have been

obvious to one of ordinary skill in the art at the time to incorporate a reconstructing,

converting, and transmitting means in regards to print data since it was well-known in

the art to convert page data into a PDL format and transmit it to the printer.

In reference to claim 2, Dennis discloses a storage means for storing the print

data.  The entire set of banded primitives is sent to a printer which stores the file in the

memory of the printer. The host computer processes the metafile to convert the data into PDL as the file is stored in memory. See column 4, lines 14-44. It would have been obvious to one of ordinary skill in the art to include a graphics library in an image processing apparatus to generate data reconstructed in the band units from the content stored in memory as taught by Dennis since a metafile transfers print data to the printer in band units which is also the function of the graphics library.

In reference to claim 3, Dennis discloses an image processing apparatus including a printer engine and storage means for reconstructing and converting the page data. The printer engine comprises the band divider which contains bandable primitives. The host computer transfers the metafile from the metafile storage area to the printer. Thus the printer stores the print data from the metafile and retrieves it once the band units are read and converted into PDL.

In reference to claim 4, Dennis's apparatus analyzes objects that are drawn over two or three bands. These objects are then divided into different bands. See column 5, lines 12-65. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate objects across plural bands since it was common in the art at the time to band across multiple band regions.

In reference to claim 5, Dennis discloses a system in which data can be divided into horizontal bands include bit-maps, character fonts, and shapes. See column 6, lines 52-56 and column 7, lines 1-10.

In reference to claims 6, 8, and 9, Dennis discloses a system in which a set of bandable primitives are transmitted to the printer. A primitive includes alphanumeric

characters (text) or graphic objects such as lines and rectangles. See column 3, lines 15-30. While Dennis does not explicitly disclose an approximation to curves with a plurality of straight lines, Dennis does discloses that it is well-known in the art to use various techniques for determining the point of intersection of an object and a band boundary can be determined for any object through the use of simple geometry and mathematics. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize approximation to curves with a plurality of straight lines in order to determine the banding regions for curves since it determines the intersection points and boundaries.

In reference to claim 10, Dennis does not explicitly disclose a detecting and determining means; however, Dennis does disclose a task sequence list in which the various bands of print data are stored. The task sequence list is sent to the printer where for each band is converted. The list aids in maintaining a certain order of the objects in the print data. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a determining means for checking to see whether the print data is reconstructed since it was common at the time to provide a list of the print data that was banded.

In reference to claim 16, Dennis discloses a system and method of printer banding in which a printed page is broken up into horizontal segments or bands that reflect the order of objects on the printed page (compare to *"reconstructing means for reconstructing print data for instructing contents. . .obtained by dividing the page into a plurality of regions"*). See column 1, lines 55-57. The data is stored in the

system in a format known as PDL (page description language) (compare to

*"converting means for converting the data. . .in a page description language*

*form"*). The PDL format describes the entire page in a file called a metafile. See

column 3, lines 42-51. The PDL data is then transmitted to the printer engine (compare

to *"transmitting means for transmitting the page description language data"*).

See column 4, lines 35-45. Dennis teaches transmitting a list of bandable primitives for

the entire page to identify overlapping objects across a plurality of bands. Objects that

cross band boundaries are divided at the band boundaries. The objects are taken in the

order they are created and overlapping objects are defined by previous objects.

Dennis's motivation for doing this is to save time in reconstructing data that has already

been constructed. Please see columns 5-6 and figure 3. Dennis further teaches that

different shapes and graphical objects require different reconstruction means. See

columns 6-8. In particular, Dennis addresses that shapes such as circles cannot be

divided into horizontal bands easily. Thus they are represented by a series of simple

geometric shapes. (Compare to *"wherein the reconstruction means processes and*

*distinguishes print data according to the type of print data and determines*

*whether the objects are positioned across a plurality of the band units"*). It would

have been obvious to one of ordinary skill in the art at the time of the invention to select

a predetermined method of reconstruction since it was common at the time for print data

to consist of various types of data such as text and graphic objects as taught by Dennis.

It would have been obvious to one of ordinary skill in the art at the time to incorporate a

reconstructing, converting, and transmitting means in regards to print data since it was

well-known in the art to convert page data into a PDL format and transmit it to the printer.

6.      Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over <u>Dennis et al.</u>, US Patent 5,588,095, 12/24/96 as applied to claim 1 above and further in view of <u>Sugiyama et al.</u>, US Patent 5,859,956, 1/99 (filed 3/97).

In reference to claim 7, Sugiyama discloses an image processing system in which a video image is the print data. The image data is divided into bands and stored into band memory. See column 12, lines 5-10. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Sugiyama's image data in the apparatus disclosed by Dennis since often the data desired to be printed is image data.

7.      Claims 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over <u>Dennis et al.</u>, US Patent 5,588,095, 12/24/96 as applied to claim 1 above and further in view of <u>Ramchandran</u>, US Patent 5,805,174, 09/08/98 (filed 10/97).

In reference to Claim 11, Ramchandran discloses scanning in which the medium of bands of images are scanned. This is done only after a full scan has been executed. See column 7, lines 16-31 and column 1, lines 24-35. Both Ramchandran and Dennis are of analogous art in the area of image processing.

In reference to claim 12, Ramchandran discloses a means with which a page description language describing objects is sent to a printer to be converted into raster data (compare to *"receiving means for receiving page description language data; raster converting means for converting the page description language data. . .into*

*raster data"*). See column 1, lines 14-22 and 36-47. Ramchandran also discloses a

buffer for storing rasterized data. See column 4, lines 15-24. Ramchandran also

discloses a step of addressing the rasterized data from the buffer for printing. See

column 7, lines 32-27. (compare to *"a buffer for storing, in band units, the raster*

*data. . .a printing mechanism. . .from said buffer"*). Ramchandran teaches that a

language parser performs the processing of the PDL instructions. The PDL instructions

are used to convert the objects into raster data, thus having a processing the page

description language data according to a type of command indicated by the page

description language data would have been obvious to one of ordinary skill in the art

since the purpose of the page description language is to identify the objects such as

shapes and text so that the raster converting means is carried out accordingly.

Ramchandran also teaches that the page description language data is used to

recognize commands and perform certain functions. See columns 1-2. The rest of

claim 12 is rejected using the same rationale for claim 1 above. It would have been

obvious to one of ordinary skill in the art at the time the invention was made to combine

Ramchandran's method of rasterizing print data with Dennis's method and apparatus for

receiving and converting print data into PDL data since both Dennis and Ramchandran

are of related technologies in image processing.

In reference to amended claim 13, Ramchandran discloses a method in which

raster data is clipped to meet certain vertical and horizontal boundaries in the buffer.

See column 14, lines 1-10. The rest of claim 13 is rejected under the same rationale

used in claim 1 above.

Claims 14 and 15 are rejected under the same rationale used to reject claims 1 and 12 above.

### Response to Arguments

8.      In response to Applicant's amendment, Examiner maintains that the limitations of the claimed invention are suggested by the Dennis et al. reference.

Applicant's amendment reflects a reconstruction means in which print data is processed and distinguished according to a type of print data and decides whether the band units to be reconstructed have common data. Dennis teaches that different shapes and graphical objects require different reconstruction means. See columns 6-8. In particular, Dennis addresses that shapes such as circles cannot be divided into horizontal bands easily. Thus they are represented by a series of simple geometric shapes. Thus Dennis is distinguishing the type of print data (according to the type of object) and processing it accordingly. Regardless of whether Dennis converts all the print objects for the entire page, he is still making a distinction and processing the object according to the type of print data. Thus limitations have failed to overcome the Dennis reference. Furthermore, Dennis suggests taking into consideration "overlapping" objects. In reference to figure 3, Dennis teaches transmitting a list of bandable primitives for the entire page. Objects that cross band boundaries are divided at the band boundaries. The objects are taken in the order they are created and overlapping objects are defined by previous objects. Dennis's motivation for doing this is to save time in reconstructing data that has already been constructed. Please see columns 5-6 and figure 3.

In reference to amended claim 13, Ramchandran discloses a method in which

raster data is clipped to meet certain vertical and horizontal boundaries in the buffer.

See column 14, lines 1-10. Please see rejection above.

In view of the rejections and comments above, Examiner's rejection is

maintained.

### *Conclusion*

9.     The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

5,604,847     Dennis et al. 2/97   System and Method of Printer Banding

5,577,173     Dennis et al. 11/96  System and Method of Printer Banding

6,006,013     Rumph et al. 12/99 (filed 6/95)     Object Optimized Printing System and

Method

5,825,994     Kumada        10/98 (filed 7/92)     Image Processing Apparatus and

Method

10.     **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of

time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action.  In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11.    Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rachna Singh at 703.305.1952.  The examiner can normally be reached on Monday-Friday from 8:00AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Feild, can be reached at 703.305.9792.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is 703.305.3900.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks
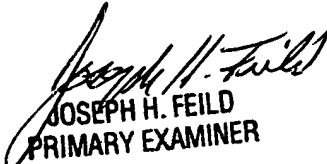Washington, D.C. 20231

**or faxed to:**

**After-Final**          **703.746.7238**
**Official**             **703.746.7239**
*Non-Official/Draft   703.746.7240*
Hand-Delivered responses should be brought to Crystal park II, 2121 Crystal Drive, Arlington VA., Sixth Floor (Receptionist).

Rachna Singh
July 9, 2003

JOSEPH H. FEILD
PRIMARY EXAMINER